



**Laboratory Report Number:** L13110051

Mark Lyon Environmental Waste Solutions 2440 Louisiana Blvd Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact: Stephanie Mossburg – Team Chemist/Data Specialist (740) 373-4071 Stephanie.Mossburg@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on November 14 2013

David E. Vandenberg

David Vandenberg - Managing Director

State of Origin: NM

Accrediting Authority: N/A ID:N/A QAPP: DOD Ver 4.1 without flagging





Microbac Laboratories \* Ohio Valley Division 158 Starlite Drive, Marietta, OH 45750 \* T: (740) 373-4071 F: (740) 373-4835 \* www.microbac.com



**Lab Project #:** 13110051 **Lab Project #:** 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Generated: 11/14/2013 11:51

# Record of Sample Receipt and Inspection

### Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy Resolution
------------------------

(	Coolers											
	Cooler #	Temperature Gun	Temperature	COC#	Airbill #	Temp Required?						
	0017840	I	2.0		1002239514660004575000804334337720	X						

Inspection Ch	ecklist	
#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	NA



**Lab Project #:** L13110051 **Lab Project #:** 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Generated: 11/14/2013 11:51

Samples Received								
Client ID	Laboratory ID	Date Collected	Date Received					
MPL 28-1013-1	L13110051-01	10/31/2013 10:00	11/01/2013 10:56					
T40-1013-1	L13110051-02	10/31/2013 11:30	11/01/2013 10:56					
MPL 17-1013-1	L13110051-03	10/31/2013 13:00	11/01/2013 10:56					
MPL 10-1013-1	L13110051-04	10/31/2013 15:25	11/01/2013 10:56					



Login Number: L13110051 Department: Metals

Analyst: Qin Xu

**METHOD** 

Preparation: SW-846 3015

**Analysis: SW-846 6010** 

**HOLDING TIMES** 

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**CALIBRATION** 

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG451676 - All acceptance criteria were met.

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Matrix Spikes: All acceptance criteria were met.

**SAMPLES** 

Samples: All acceptance criteria were met.

Narrative ID: 74042

Approved By: Sheri Pfalzgraf
Sheri L. Plakara



Login Number: L13110051 Department: Metals Analyst: Ji Hu

**METHOD** 

Preparation: SW-846 3015

**Analysis:** SW-846 6020

**HOLDING TIMES** 

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**CALIBRATION** 

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

**Continuing Calibration Blank:** WG451 - The continuing calibration blank exceeded the LOD for manganese on 05-Nov-2013 at 18:21. All client samples and batch QA/QC samples were reanalyzed on a later calibration which was compliant for manganese.

Low Level Check: All acceptance criteria were met.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Page 1 of 2

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG451582 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**SAMPLES** 

**Samples:** All acceptance criteria were met.

Narrative ID: 74017

Approved By: Sheri Pfalzgraf



Login Number: L13110051 Department: Metals - AA Analyst: Pierce Morris

**METHOD** 

Preparation: SW-846 7470

**Analysis:** SW-846 7470

**HOLDING TIMES** 

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**CALIBRATION** 

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG451327 - All acceptance criteria were met.

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Matrix Spikes: All acceptance criteria were met.

**SAMPLES** 

Samples: All acceptance criteria were met.

Narrative ID: 74146

Approved By: Sheri Pfalzgraf
Sheri L. Plakara



Login Number: L13110051

**Department**: General Chromatography

**Analyst:** Jeremy Kinney

#### **METHOD**

Analysis EPA300.0/SW846 9056

#### **HOLDING TIMES**

**Sample Analysis:** Hold times for NO2 and NO3 are 48 hours and the hold times for F, Cl, Br, and SO4 are 28 days. The hold time forms calculate the hold time based on 48 hours. All samples were analyzed in hold.

### **CALIBRATION**

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

#### **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

### **SAMPLES**

**Samples:** Fractions -02-04 were analyzed at dilutions only due to concentrations of one or more of the target analytes being near or greater than the ICAL.

MANUAL INTEGRATION: No manual integration was required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

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Narrative ID: 74181 Approved By: Mike Cochran

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Login Number: L13110051 Department: Conventionals Analyst: Brice Fenton

**METHOD** 

Analysis EPA 310.2 (Alkalinity)

**HOLDING TIMES** 

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

**SAMPLES** 

Samples: All acceptance criteria were met.

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Narrative ID: 74425

Imma/bsson

Approved By: Deanna Hesson

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Login Number: L13110051 Department: Conventionals

Analyst:

#### **METHOD**

Analysis SW846 9014/9010C/SM4500-CN-C,E-20th (Cyanide)

#### **HOLDING TIMES**

Sample Analysis: All holding times were met.

# **PREPARATION**

Sample preparation proceeded normally.

# **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

**Laboratory Control Sample:** Cyanide-Ammenable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammenable (the treated portion is ND). The LCS forms cannot calculate cyanide ammenable. The LCS is acceptable.

Sample #	Analyte	Date	Result	Lower	Upper	Туре	
WG451865-02	Cyanide	2013-11-08 15:30:04	8.00	90	110	Recovery	

Matrix Spikes: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

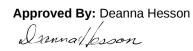
# **SAMPLES**

**Samples:** All acceptance criteria were met.

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Narrative ID: 74316

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Login Number: L13110051 Department: Conventionals Analyst: Deanna Hesson

#### **METHOD**

Analysis EPA 120.1/SM2510 B (Conductivity)

**HOLDING TIMES** 

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**SAMPLES** 

Samples: All acceptance criteria were met.

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Narrative ID: 74426

Imma/bsson

Approved By: Deanna Hesson

Page 1 of 1



Login Number: L13110051 Department: Conventionals Analyst: Brice Fenton

#### **METHOD**

**Analysis** EPA 350.1/SM4500-NH3 B(NH3)

**HOLDING TIMES** 

Sample Analysis: All holding times were met.

**PREPARATION** 

Sample preparation proceeded normally.

**BATCH QA/QC** 

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**SAMPLES** 

Samples: All acceptance criteria were met.

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Narrative ID: 74428

Imma/bsson

Approved By: Deanna Hesson

Page 1 of 1



Login Number: L13110051 Department: Conventionals Analyst: Brice Fenton

#### **METHOD**

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

#### **HOLDING TIMES**

**Sample Analysis:** The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO3NO2) which is the amount of total nitrate (NO3) and nitrite (NO2) combined. The NO3 concentration is determined by analyzing for NO3NO2 and NO2 and calculating NO3 by the difference. An unpreserved bottle only has a 48 hour hold time for NO3 and NO2 separately. However if the bottle is preserved with sulfuric acid, the hold time for NO3NO2 is 28 days. The NO2 was analyzed within 48 hours. The NO3NO2 was analyzed from a preserved container within 28 days..

#### **PREPARATION**

Sample preparation proceeded normally.

### **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

## **SAMPLES**

Samples: All acceptance criteria were met.

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Narrative ID: 74429

Approved By: Deanna Hesson

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Login Number: L13110051 Department: Conventionals Analyst: Tammy Morris

#### **METHOD**

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

### **HOLDING TIMES**

Sample Analysis: All holding times were met.

#### **PREPARATION**

Sample preparation proceeded normally.

# **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

# **SAMPLES**

Samples: All acceptance criteria were met.

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Narrative ID: 74430

Imma/bsson

Approved By: Deanna Hesson

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Login Number: L13110051 Department: Conventionals Analyst: April Greene

#### **METHOD**

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

### **HOLDING TIMES**

Sample Analysis: All holding times were met.

#### **PREPARATION**

Sample preparation proceeded normally.

# **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

# **SAMPLES**

Samples: All acceptance criteria were met.

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Narrative ID: 74433

Imma/bsson

Approved By: Deanna Hesson

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Login Number: L13110051 Department: Conventionals Analyst: Brice Fenton

#### **METHOD**

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)

Soil: Lloyd-Khan Methodology

#### **HOLDING TIMES**

Sample Analysis: All holding times were met.

#### **PREPARATION**

Sample preparation proceeded normally.

## **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

# **SAMPLES**

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 74431

Immallesson

Approved By: Deanna Hesson

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Login Number: L13110051 Department: Conventionals Analyst: April Greene

#### **METHOD**

Analysis EPA 160.2/SM2540 D (Total Suspended Solids)

#### **HOLDING TIMES**

Sample Analysis: All holding times were met.

#### **PREPARATION**

Sample preparation proceeded normally.

# **BATCH QA/QC**

Method Blank: All acceptance criteria were met.

**Laboratory Control Sample:** Recoveries out of range were observed for the following analytes: Total Suspended Solids. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Туре
WG451402-03	Total Suspended Solids	2013-11-05 06:09:03	13.6		10	RPD

**Duplicates:** All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

# **SAMPLES**

**Samples:** All acceptance criteria were met.

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Narrative ID: 74432

Approved By: Deanna Hesson

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Lab Contact: Stephanie Mossburg

Certificate of Analysis

 Sample #:
 L13110051-01
 PrePrep Method:
 N/A
 Instrument:
 ICP-THERMO2

 Client ID:
 MPL 28-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:38

 Matrix:
 Water
 Analytical Method:
 6010B
 Cal Date:
 11/06/2013 09:36

 Workgroup #:
 WG451676
 Analyst:
 QX
 Run Date:
 11/06/2013 11:51

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 T2.110613.115122

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Beryllium, To	otal	7440-41-7		U	0.00200	0.00100
Calcium, Tot	al	7440-70-2	86.3		0.500	0.250
Magnesium,	Total	7439-95-4	15.7		0.500	0.250
Potassium,	<b>Total</b>	7440-09-7	2.94		1.00	0.500
Sodium, Tota	al	7440-23-5	33.1		0.500	0.250
Tin, Total		7440-31-5		U	0.500	0.250
Vanadium, T	otal	7440-62-2		U	0.0100	0.00500
Zinc, Total		7440-66-6	0.0145	J	0.0200	0.0100
J	Estimated value ; the analyte conce	ntration was less than the LOQ.				
U	Analyte was not detected. The conc	entration is below the reported	LOD.			



Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 28-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/06/2013 09:22

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/06/2013 17:16

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 NI.110613.171618

Sample Tag: 02 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD	
Manganese,	Total	7439-96-5	0.00119	J	0.00200	0.00100	
J	Estimated value ; the analyte concentration wa	s less than the LOQ	).				
U	J Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 28-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/05/2013 10:02

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/05/2013 19:14

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 NI.110513.191405

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Antimony, Tota	I	7440-36-0		U	0.00100	0.000500
Arsenic, Total		7440-38-2	0.00545		0.00100	0.000500
Barium, Total		7440-39-3	0.0788		0.00300	0.00150
Cadmium, Tota	ul	7440-43-9		U	0.000600	0.000300
Chromium, Tot	al	7440-47-3	0.00250		0.00200	0.00100
Cobalt, Total		7440-48-4		U	0.00100	0.000500
Copper, Total		7440-50-8	0.00109	J	0.00200	0.00100
Lead, Total		7439-92-1		U	0.00100	0.000500
Nickel, Total		7440-02-0	0.00303	J	0.00400	0.00200
Selenium, Tota	I	7782-49-2	0.0200		0.00100	0.000500
Silver, Total		7440-22-4		U	0.00100	0.000500
Thallium, Total		7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration	n was less than the LOQ				
U	Analyte was not detected. The concentration	on is below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: CVAA1

 Client ID:
 MPL 28-1013-1
 Prep Method:
 7470A
 Prep Date:
 11/04/2013 08:59

 Matrix:
 Water
 Analytical Method:
 7470A
 Cal Date:
 11/04/2013 12:58

 Workgroup #:
 WG451327
 Analyst:
 PDM
 Run Date:
 11/04/2013 13:16

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 M7.110413.131619

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Mercury		7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: IC1

 Client ID:
 MPL 28-1013-1
 Prep Method:
 300.0
 Prep Date:
 11/07/2013 12:03

 Matrix:
 Water
 Analytical Method:
 300.0
 Cal Date:
 11/06/2013 10:26

 Workgroup #:
 WG451877
 Analyst:
 JBK
 Run Date:
 11/07/2013 16:55

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 11\_10713-20

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Chloride		16887-00-6	108	J	0.200	0.100
Fluoride		16984-48-8	0.180	J	0.200	0.100
Sulfate		14808-79-8	156	J	1.00	0.500
J	Estimated value ; the analyte concentration wa	s less than the LOQ				
J	Estimated value ; the analyte concentration wa	as greater than the hi	ghest standard			

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Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: IC1

 Client ID:
 MPL 28-1013-1
 Prep Method:
 300.0
 Prep Date:
 11/07/2013 12:03

 Matrix:
 Water
 Analytical Method:
 300.0
 Cal Date:
 11/06/2013 10:26

 Workgroup #:
 WG451877
 Analyst:
 JBK
 Run Date:
 11/07/2013 17:13

 Collect Date:
 10/31/2013 10:00
 Dilution:
 10
 File ID:
 11\_110713-21

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Chloride		16887-00-6	80.6		2.00	1.00
Fluoride		16984-48-8		U	2.00	1.00
Sulfate		14808-79-8	124		10.0	5.00
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Report #: L13110051
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

# Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: ORION-4STAR

Client ID: MPL 28-1013-1 Prep Method: 9040C Prep Date: N/A

Matrix: Water Analytical Method: 9040C Cal Date:

 Workgroup #:
 WG451149
 Analyst:
 EPT
 Run Date:
 11/01/2013 16:20

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 OS13110409534801

Sample Tag: Units: UNITS

Analyte	CAS#	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.62		0.000	0.000
Temperature At Determination (C)				0.000	0.000

Sample #: L13110051-01 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 28-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:17

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 SC131104002.023

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Carb	onate (as CaCO3)	13-01-4		U	20.0	10.0
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Report #: L13110051
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 28-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:17

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 SC131104002.023

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)	13-00-3	92.1		20.0	10.0

Sample #: L13110051-01 PrePrep Method: N/A Instrument: SMARTCHEM

**Client ID:** MPL 28-1013-1 **Prep Method:** 310.2 **Prep Date:** N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:17

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 SC131104002.023

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	92.1		20.0	10.0

Sample #: L13110051-01 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 28-1013-1 Prep Method: SM4500-CN-C,G-1999 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-C,G-1999
 Cal Date:
 11/08/2013 09:20

 Workgroup #:
 WG451865
 Analyst:
 DCM
 Run Date:
 11/08/2013 15:30

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 1V.1311081530-10

Sample Tag: DL02 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.0813		0.0100	0.00500

Sample #: L13110051-01 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 28-1013-1 Prep Method: SM4500-CN-I Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-I
 Cal Date:
 11/06/2013 11:30

 Workgroup #:
 WG451301
 Analyst:
 DCM
 Run Date:
 11/06/2013 16:10

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 1V.1311061610-11

Sample Tag: DL01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0623		0.0100	0.00500

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Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: UV-120-1V

 Client ID:
 MPL 28-1013-1
 Prep Method:
 9014-9010C
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 9014-9010C
 Cal Date:
 11/06/2013 10:20

 Workgroup #:
 WG451297
 Analyst:
 DCM
 Run Date:
 11/06/2013 12:15

 Collect Date:
 10/31/2013 10:00
 Dilution:
 2
 File ID:
 1V.1311061215-12

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.0816		0.0200	0.0100

 Sample #:
 L13110051-01
 PrePrep Method:
 N/A
 Instrument:
 TIAMO1

 Client ID:
 MPL 28-1013-1
 Prep Method:
 120.1
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 120.1
 Cal Date:

 Workgroup #:
 WG451129
 Analyst:
 DIH
 Run Date:
 11/01/2013 18:23

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 TI.110113.1823CO

Sample Tag: 01 Units: umhos/cm

Analyte	CAS#	Result	Qual	LOQ	LOD
Conductivity		578		50.0	10.0

Sample #: L13110051-01 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 28-1013-1 Prep Method: 350.1 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 350.1
 Cal Date:
 11/05/2013 10:23

 Workgroup #:
 WG451434
 Analyst:
 BAF
 Run Date:
 11/05/2013 11:01

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 SC131105002.048

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrogen, Amm	onia	7664-41-7		U	0.100	0.0500
U Analyte was not detected. The concentration is below the reported LOD.						

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Generated: 11/14/2013 11:51



Collect Date: 10/31/2013 10:00

Lab Report #: L13110051 Lab Project #: 3005.011 Project Name: White Sands MR Lab Contact: Stephanie Mossburg

File ID: 1V.1311011515-05

Certificate of Analysis

Sample #: L13110051-01 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 28-1013-1 Prep Method: 353.2 Prep Date: N/A

Matrix: Water **Analytical Method: 353.2** Cal Date: 11/05/2013 10:23 Workgroup #: WG451545 Analyst: BAF Run Date: 11/06/2013 10:10 Collect Date: 10/31/2013 10:00 Dilution: 8 File ID: SC13110811282601

Units: mg/L Sample Tag:

Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		9.18		0.400	0.200

Instrument: UV-120-1V **Sample #:** L13110051-01 PrePrep Method: N/A

Client ID: MPL 28-1013-1 Prep Method: SM4500-P-E-1999 Prep Date: N/A

Matrix: Water Analytical Method: SM4500-P-E-1999 Cal Date: 10/30/2013 09:00 Run Date: 11/01/2013 15:15 Workgroup #: WG451168 Analyst: TMM Dilution: 1

Sample Tag: Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Orthophosphat	e	14265-44-2	0.0285	J	0.0500	0.0250
J	Estimated value ; the analyte concentration wa	s less than the LOQ	).			

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L13110051 / Revision: 0 / 79 total pages



Lab Contact: Stephanie Mossburg

# Certificate of Analysis

 Sample #:
 L13110051-01
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 28-1013-1
 Prep Method:
 160.1/SM2540C
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 SM2540-C-1997
 Cal Date:

 Workgroup #:
 WG451350
 Analyst:
 ADG
 Run Date:
 11/04/2013 15:18

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 EN.1311041518-05

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Dissolved Solids		482		20.0	10.0

Sample #: L13110051-01 PrePrep Method: N/A Instrument: TOC-VWP

Client ID: MPL 28-1013-1 Prep Method: 415.1 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 415.1
 Cal Date:
 07/09/2013 14:51

 Workgroup #:
 WG451144
 Analyst:
 BAF
 Run Date:
 11/01/2013 20:23

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 TC11012013.023

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.92		1.00	0.500

 Sample #:
 L13110051-01
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 28-1013-1
 Prep Method:
 160.2/SM2540D
 Prep Date:
 N/A

Matrix: Water Analytical Method: SM2540-D-1997 Cal Date:

 Workgroup #:
 WG451402
 Analyst:
 ADG
 Run Date:
 11/05/2013 06:09

 Collect Date:
 10/31/2013 10:00
 Dilution:
 1
 File ID:
 EN.1311050609-05

Sample Tag: Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Total Suspend	ed Solids			U	5.00	2.50
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

# Certificate of Analysis

 Sample #:
 L13110051-02
 PrePrep Method:
 N/A
 Instrument:
 ICP-THERMO2

 Client ID:
 T40-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:38

 Matrix:
 Water
 Analytical Method:
 6010B
 Cal Date:
 11/06/2013 09:36

 Workgroup #:
 WG451676
 Analyst:
 QX
 Run Date:
 11/06/2013 11:54

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 T2.110613.115452

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD	
Beryllium	, Total	7440-41-7		U	0.00200	0.00100	
Calcium,	Total	7440-70-2	45.4		0.500	0.250	
Magnesiu	ım, Total	7439-95-4	7.30		0.500	0.250	
Potassiur	n, Total	7440-09-7	3.58		1.00	0.500	
Sodium,	<b>Total</b>	7440-23-5	19.1		0.500	0.250	
Tin, Total		7440-31-5		U	0.500	0.250	
Vanadium	ı, Total	7440-62-2	0.00701	J	0.0100	0.00500	
Zinc, Tota	ı	7440-66-6	0.0224		0.0200	0.0100	
J	Estimated value ; the analyte concentration was less than the LOQ.						
U	Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 T40-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/06/2013 09:22

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/06/2013 17:19

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 NI.110613.171922

Sample Tag: 02 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Manganese, To	otal	7439-96-5	0.00219		0.00200	0.00100
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 T40-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/05/2013 10:02

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/05/2013 19:17

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 NI.110513.191710

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00285		0.00100	0.000500
Barium, Total	7440-39-3	0.134		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00571		0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8		U	0.00200	0.00100
Lead, Total	7439-92-1		U	0.00100	0.000500
Nickel, Total	7440-02-0	0.00530		0.00400	0.00200
Selenium, Total	7782-49-2	0.00337		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100
U Analyte was not detected. The con-	centration is below the reported	LOD.	ı	1	

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: CVAA1

 Client ID:
 T40-1013-1
 Prep Method:
 7470A
 Prep Date:
 11/04/2013 08:59

 Matrix:
 Water
 Analytical Method:
 7470A
 Cal Date:
 11/04/2013 12:58

 Workgroup #:
 WG451327
 Analyst:
 PDM
 Run Date:
 11/04/2013 13:21

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 M7.110413.132123

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Mercury		7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: IC1

 Client ID:
 T40-1013-1
 Prep Method:
 300.0
 Prep Date:
 11/07/2013 12:03

 Matrix:
 Water
 Analytical Method:
 300.0
 Cal Date:
 11/06/2013 10:26

 Workgroup #:
 WG451877
 Analyst:
 JBK
 Run Date:
 11/07/2013 17:30

 Collect Date:
 10/31/2013 11:30
 Dilution:
 3
 File ID:
 I1\_110713-22

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Chloride		16887-00-6	27.3		0.600	0.300
Fluoride		16984-48-8		U	0.600	0.300
Sulfate		14808-79-8	32.3		3.00	1.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

#### Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: ORION-4STAR

 Client ID:
 T40-1013-1
 Prep Method:
 9040C
 Prep Date:
 N/A

Matrix: Water Analytical Method: 9040C Cal Date:

 Workgroup #:
 WG451149
 Analyst:
 EPT
 Run Date:
 11/01/2013 16:22

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 OS13110409535901

Sample Tag: Units: UNITS

Analyte	CAS#	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.77		0.000	0.000
Temperature At Determination (C)				0.000	0.000

Sample #: L13110051-02 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: T40-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:18

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 SC131104002.024

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)	13-00-3	117		20.0	10.0

Sample #: L13110051-02 PrePrep Method: N/A Instrument: SMARTCHEM

**Client ID:** T40-1013-1 **Prep Method:** 310.2 **Prep Date:** N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:18

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 SC131104002.024

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Carb	onate (as CaCO3)	13-01-4		U	20.0	10.0
U	U Analyte was not detected. The concentration is below the reported LOD.					

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Collect Date: 10/31/2013 11:30

Lab Report #: L13110051 Lab Project #: 3005.011 Project Name: White Sands MR Lab Contact: Stephanie Mossburg

File ID: 1V.1311061610-12

## Certificate of Analysis

**Sample #:** L13110051-02 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: T40-1013-1 Prep Method: 310.2 Prep Date: N/A

Matrix: Water **Analytical Method: 310.2** Cal Date: 11/04/2013 14:08 Workgroup #: WG451319 Analyst: BAF Run Date: 11/04/2013 14:18 Collect Date: 10/31/2013 11:30 Dilution: 1 File ID: SC131104002.024

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	117		20.0	10.0

**Sample #:** L13110051-02 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: T40-1013-1 Prep Method: SM4500-CN-I Prep Date: N/A

Matrix: Water Analytical Method: SM4500-CN-I Cal Date: 11/06/2013 10:20 Workgroup #: WG451301 Run Date: 11/06/2013 16:10 Analyst: DCM Dilution: 1

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Weak	/Dissociable	57-12-5		U	0.0100	0.00500
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

**Sample #:** L13110051-02

PrePrep Method: N/A

Instrument: UV-120-1V

Client ID: T40-1013-1

Prep Method: 9014-9010C

Prep Date: N/A

Matrix: Water

Analytical Method: 9014-9010C

Cal Date: 11/06/2013 10:20

Workgroup #: WG451297

Analyst: DCM

Run Date: 11/06/2013 12:15

Collect Date: 10/31/2013 11:30

Dilution: 1

File ID: 1V.1311061215-13

Sample Tag:

Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide		57-12-5		U	0.0100	0.00500
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: UV-120-1V

 Client ID:
 T40-1013-1
 Prep Method:
 SM4500-CN-C,G-1999
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-C,G-1999
 Cal Date:
 11/08/2013 09:20

 Workgroup #:
 WG451865
 Analyst:
 DCM
 Run Date:
 11/08/2013 15:30

 Collect Date:
 10/31/2013 11:30
 Dilution:
 1
 File ID:
 1V.1311081530-11

Sample Tag: DL02 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Amer	able to Chlor.	57-12-5		U	0.0100	0.00500
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

**Sample #:** L13110051-02 PrePrep Method: N/A Instrument: TIAMO1

Client ID: T40-1013-1 Prep Method: 120.1 Prep Date: N/A Matrix: Water **Analytical Method: 120.1** Cal Date:

Workgroup #: WG451155 Analyst: DIH Run Date: 11/01/2013 19:17 Collect Date: 10/31/2013 11:30 Dilution: 1 File ID: TI.110113.1917CO

Sample Tag: 01 Units: umhos/cm

Analyte	CAS#	Result	Qual	LOQ	LOD
Conductivity		380		50.0	10.0

Instrument: SMARTCHEM **Sample #:** L13110051-02 PrePrep Method: N/A

Client ID: T40-1013-1 Prep Method: 350.1 Prep Date: N/A

Matrix: Water **Analytical Method: 350.1** Cal Date: 11/05/2013 10:23 Workgroup #: WG451434 Analyst: BAF Run Date: 11/05/2013 11:01 Collect Date: 10/31/2013 11:30 Dilution: 1 File ID: SC131105002.049

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrogen, Amm	onia	7664-41-7		U	0.100	0.0500
U Analyte was not detected. The concentration is below the reported LOD.						

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Generated: 11/14/2013 11:51



Collect Date: 10/31/2013 11:30

Lab Report #: L13110051 Lab Project #: 3005.011 Project Name: White Sands MR Lab Contact: Stephanie Mossburg

File ID: 1V.1311011515-06

#### Certificate of Analysis

Sample #: L13110051-02 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: T40-1013-1 Prep Method: 353.2 Prep Date: N/A

Matrix: Water Analytical Method: 353.2 Cal Date: 11/05/2013 10:23 Run Date: 11/06/2013 10:10 Workgroup #: WG451545 Analyst: BAF Collect Date: 10/31/2013 11:30 Dilution: 4 File ID: SC13110811283801

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		2.45		0.200	0.100

Sample #: L13110051-02 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: T40-1013-1 Prep Method: SM4500-P-E-1999 Prep Date: N/A

Matrix: Water Analytical Method: SM4500-P-E-1999 Cal Date: 10/30/2013 09:00 Workgroup #: WG451168 Analyst: TMM Run Date: 11/01/2013 15:15 Dilution: 1

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2	0.100		0.0500	0.0250

Sample #: L13110051-02 PrePrep Method: N/A Instrument: OVEN Client ID: T40-1013-1 Prep Method: 160.1/SM2540C Prep Date: N/A

Matrix: Water Analytical Method: SM2540-C-1997 Cal Date:

Workgroup #: WG451350 Analyst: ADG Run Date: 11/04/2013 15:18 Collect Date: 10/31/2013 11:30 Dilution: 1 File ID: EN.1311041518-06

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Dissolved Solids		254		20.0	10.0

Sample #: L13110051-02 Instrument: TOC-VWP PrePrep Method: N/A

Client ID: T40-1013-1 Prep Method: 415.1 Prep Date: N/A

Matrix: Water Analytical Method: 415.1 Cal Date: 07/09/2013 14:51 Workgroup #: WG451144 Analyst: BAF Run Date: 11/01/2013 20:36 Collect Date: 10/31/2013 11:30 File ID: TC11012013.024 Dilution: 1

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.62		1.00	0.500

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Lab Project #: 13110051

Lab Project #: 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #: L13110051-02

PrePrep Method: N/A

Instrument: OVEN

Client ID: T40-1013-1

Prep Method: 160.2/SM2540D

Prep Date: N/A

Matrix: Water

Analytical Method: SM2540-D-1997

Cal Date:

Workgroup #: WG451402

Analyst: ADG

**Run Date:** 11/05/2013 06:09

Collect Date: 10/31/2013 11:30

Dilution: 1

**File ID:** EN.1311050609-06

Sample Tag:

Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Total Suspende	ed Solids			U	5.00	2.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

 Sample #:
 L13110051-03
 PrePrep Method:
 N/A
 Instrument:
 ICP-THERMO2

 Client ID:
 MPL 17-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:38

 Matrix:
 Water
 Analytical Method:
 6010B
 Cal Date:
 11/06/2013 09:36

 Column via:
 MO 4545756
 Analytical Method:
 OV
 Purp Date:
 14/06/2013 11:50

 Workgroup #:
 WG451676
 Analyst:
 QX
 Run Date:
 11/06/2013 11:58

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 T2.110613.115820

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Beryllium, To	tal	7440-41-7		U	0.00200	0.00100
Calcium, Tota	al	7440-70-2	51.3		0.500	0.250
Magnesium,	Total	7439-95-4	8.36		0.500	0.250
Potassium, T	otal	7440-09-7	2.50		1.00	0.500
Sodium, Tota	I	7440-23-5	26.2		0.500	0.250
Tin, Total		7440-31-5		U	0.500	0.250
Vanadium, To	otal	7440-62-2	0.00554	J	0.0100	0.00500
Zinc, Total		7440-66-6	0.0134	J	0.0200	0.0100
J	Estimated value ; the analyte concentration	n was less than the LOQ			'	
U	Analyte was not detected. The concentration is below the reported LOD.					



Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 17-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/06/2013 09:22

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/06/2013 17:22

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 NI.110613.172226

Sample Tag: 02 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD	
Manganese, Total 7439-96-5 0.0016				J	0.00200	0.00100	
J	Estimated value ; the analyte concentration was less than the LOQ.						
U Analyte was not detected. The concentration is below the reported LOD.							

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 17-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/05/2013 10:02

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/05/2013 19:20

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 NI.110513.192014

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Antimony, Tota	I	7440-36-0		U	0.00100	0.000500
Arsenic, Total		7440-38-2	0.00183		0.00100	0.000500
Barium, Total		7440-39-3	0.0725		0.00300	0.00150
Cadmium, Tota	ા	7440-43-9		U	0.000600	0.000300
Chromium, Tot	al	7440-47-3	0.00188	J	0.00200	0.00100
Cobalt, Total		7440-48-4		U	0.00100	0.000500
Copper, Total		7440-50-8	0.00131	J	0.00200	0.00100
Lead, Total		7439-92-1		U	0.00100	0.000500
Nickel, Total		7440-02-0		U	0.00400	0.00200
Selenium, Tota	ı	7782-49-2	0.00485		0.00100	0.000500
Silver, Total		7440-22-4		U	0.00100	0.000500
Thallium, Total		7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration v	was less than the LOQ				
U	Analyte was not detected. The concentration	is below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: CVAA1

 Client ID:
 MPL 17-1013-1
 Prep Method:
 7470A
 Prep Date:
 11/04/2013 08:59

 Matrix:
 Water
 Analytical Method:
 7470A
 Cal Date:
 11/04/2013 12:58

 Workgroup #:
 WG451327
 Analyst:
 PDM
 Run Date:
 11/04/2013 13:23

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 M7.110413.132355

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Mercury		7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: IC1

 Client ID:
 MPL 17-1013-1
 Prep Method:
 300.0
 Prep Date:
 11/07/2013 12:03

 Matrix:
 Water
 Analytical Method:
 300.0
 Cal Date:
 11/06/2013 10:26

 Workgroup #:
 WG451877
 Analyst:
 JBK
 Run Date:
 11/07/2013 17:48

 Collect Date:
 10/31/2013 13:00
 Dilution:
 5
 File ID:
 11\_110713-23

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Chloride		16887-00-6	48.0		1.00	0.500
Fluoride		16984-48-8		U	1.00	0.500
Sulfate		14808-79-8	54.6		5.00	2.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: ORION-4STAR

Client ID: MPL 17-1013-1 Prep Method: 9040C Prep Date: N/A

Matrix: WaterAnalytical Method: 9040CCal Date:

 Workgroup #:
 WG451149
 Analyst:
 EPT
 Run Date:
 11/01/2013 16:23

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 OS13110409541301

Sample Tag: Units: UNITS

Analyte	CAS#	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.62		0.000	0.000
Temperature At Determination (C)				0.000	0.000

Sample #: L13110051-03 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 17-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:18

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 SC131104002.025

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Carb	onate (as CaCO3)	13-01-4		U	20.0	10.0
U Analyte was not detected. The concentration is below the reported LOD.						

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#### Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 17-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:18

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 SC131104002.025

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)	13-00-3	80.4		20.0	10.0

Sample #: L13110051-03 PrePrep Method: N/A Instrument: SMARTCHEM

**Client ID:** MPL 17-1013-1 **Prep Method:** 310.2 **Prep Date:** N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:18

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 SC131104002.025

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	80.4		20.0	10.0

Sample #: L13110051-03 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 17-1013-1 Prep Method: SM4500-CN-C,G-1999 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-C,G-1999
 Cal Date:
 11/08/2013 09:20

 Workgroup #:
 WG451865
 Analyst:
 DCM
 Run Date:
 11/08/2013 15:30

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 1V.1311081530-12

Sample Tag: DL02 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.0518		0.0100	0.00500

Sample #: L13110051-03 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 17-1013-1 Prep Method: SM4500-CN-I Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-I
 Cal Date:
 11/06/2013 10:20

 Workgroup #:
 WG451301
 Analyst:
 DCM
 Run Date:
 11/06/2013 16:10

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 1V.1311061610-13

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable		57-12-5	0.00686	J	0.0100	0.00500
J Estimated value ; the analyte concentration was less than the LOQ.						

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#### Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: UV-120-1V

 Client ID:
 MPL 17-1013-1
 Prep Method:
 9014-9010C
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 9014-9010C
 Cal Date:
 11/06/2013 11:30

 Workgroup #:
 WG451297
 Analyst:
 DCM
 Run Date:
 11/06/2013 12:15

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 1V.1311061215-14

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.0603		0.0100	0.00500

Sample #: L13110051-03 PrePrep Method: N/A Instrument: TIAMO1
Client ID: MPL 17-1013-1 Prep Method: 120.1 Prep Date: N/A
Matrix: Water Analytical Method: 120.1 Cal Date:

 Workgroup #:
 WG451155
 Analyst:
 DIH
 Run Date:
 11/01/2013 19:19

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 TI.110113.1919CO

Sample Tag: 01 Units: umhos/cm

Analyte	CAS#	Result	Qual	LOQ	LOD
Conductivity		429		50.0	10.0

Sample #: L13110051-03 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 17-1013-1 Prep Method: 350.1 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 350.1
 Cal Date:
 11/05/2013 10:23

 Workgroup #:
 WG451434
 Analyst:
 BAF
 Run Date:
 11/05/2013 11:03

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 SC131105002.050

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrogen, Amm	onia	7664-41-7		U	0.100	0.0500
U Analyte was not detected. The concentration is below the reported LOD.						

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Certificate of Analysis

Sample #: L13110051-03 PrePrep Method: N/A Instrument: SMARTCHEM

 Client ID:
 MPL 17-1013-1
 Prep Method:
 353.2
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 353.2
 Cal Date:
 11/05/2013 10:23

 Workgroup #:
 WG451545
 Analyst:
 BAF
 Run Date:
 11/06/2013 10:10

 Collect Date:
 10/31/2013 13:00
 Dilution:
 4
 File ID:
 SC13110811284801

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		5.51		0.200	0.100

Sample #: L13110051-03 PrePrep Method: N/A Instrument: UV-120-1V

 Client ID:
 MPL 17-1013-1
 Prep Method:
 SM4500-P-E-1999
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-P-E-1999
 Cal Date:
 10/30/2013 09:00

 Workgroup #:
 WG451168
 Analyst:
 TMM
 Run Date:
 11/01/2013 15:15

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 1V.1311011515-07

Sample Tag: Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Orthophosphate		14265-44-2		U	0.0500	0.0250
U Analyte was not detected. The concentration is below the reported LOD.						

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#### Certificate of Analysis

 Sample #:
 L13110051-03
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 17-1013-1
 Prep Method:
 160.1/SM2540C
 Prep Date:
 N/A

Matrix: Water Analytical Method: SM2540-C-1997 Cal Date:

 Workgroup #:
 WG451350
 Analyst:
 ADG
 Run Date:
 11/04/2013 15:18

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 EN.1311041518-07

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Dissolved Solids		276		20.0	10.0

Sample #: L13110051-03 PrePrep Method: N/A Instrument: TOC-VWP

Client ID: MPL 17-1013-1 Prep Method: 415.1 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 415.1
 Cal Date:
 07/09/2013 14:51

 Workgroup #:
 WG451144
 Analyst:
 BAF
 Run Date:
 11/01/2013 20:48

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 TC11012013.025

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.51		1.00	0.500

 Sample #:
 L13110051-03
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 17-1013-1
 Prep Method:
 160.2/SM2540D
 Prep Date:
 N/A

Matrix: Water Analytical Method: SM2540-D-1997 Cal Date:

 Workgroup #:
 WG451402
 Analyst:
 ADG
 Run Date:
 11/05/2013 06:09

 Collect Date:
 10/31/2013 13:00
 Dilution:
 1
 File ID:
 EN.1311050609-07

Sample Tag: Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Total Suspend	ed Solids			U	5.00	2.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Collect Date: 10/31/2013 15:25

Lab Report #:L13110051Lab Project #:3005.011Project Name:White Sands MR

Lab Contact: Stephanie Mossburg

File ID: T2.110613.120150

## Certificate of Analysis

 Sample #:
 L13110051-04
 PrePrep Method:
 N/A
 Instrument:
 ICP-THERMO2

 Client ID:
 MPL 10-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:38

 Matrix:
 Water
 Analytical Method:
 6010B
 Cal Date:
 11/06/2013 09:36

 Workgroup #:
 WG451676
 Analyst:
 QX
 Run Date:
 11/06/2013 12:01

Dilution: 1

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Beryllium, Tot	tal	7440-41-7		U	0.00200	0.00100
Calcium, Tota	ા	7440-70-2	54.7		0.500	0.250
Magnesium,	Total	7439-95-4	10.3		0.500	0.250
Potassium, To	otal	7440-09-7	2.31		1.00	0.500
Sodium, Tota	I	7440-23-5	26.8		0.500	0.250
Tin, Total		7440-31-5		U	0.500	0.250
Vanadium, To	otal	7440-62-2		U	0.0100	0.00500
Zinc, Total		7440-66-6	0.0101	J	0.0200	0.0100
J	Estimated value ; the analyte conce	ntration was less than the LOQ			'	
U	Analyte was not detected. The cond	entration is below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 10-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/05/2013 10:02

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/05/2013 17:54

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 NI.110513.175404

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Antimony, Total	I	7440-36-0		U	0.00100	0.000500
Arsenic, Total		7440-38-2	0.00467		0.00100	0.000500
Barium, Total		7440-39-3	0.114		0.00300	0.00150
Cadmium, Tota	ıl	7440-43-9		U	0.000600	0.000300
Chromium, Tota	al	7440-47-3	0.00205		0.00200	0.00100
Cobalt, Total		7440-48-4		U	0.00100	0.000500
Copper, Total		7440-50-8		U	0.00200	0.00100
Lead, Total		7439-92-1		U	0.00100	0.000500
Nickel, Total		7440-02-0		U	0.00400	0.00200
Selenium, Total	I	7782-49-2	0.0180		0.00100	0.000500
Silver, Total		7440-22-4		U	0.00100	0.000500
Thallium, Total		7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration w	as less than the LOQ	).			
U	Analyte was not detected. The concentration	is below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: ICP-MS2

 Client ID:
 MPL 10-1013-1
 Prep Method:
 3015
 Prep Date:
 11/05/2013 10:55

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 11/06/2013 09:22

 Workgroup #:
 WG451582
 Analyst:
 JYH
 Run Date:
 11/06/2013 17:07

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 NI.110613.170703

Sample Tag: 02 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Manganese, Total		7439-96-5	0.00125	J	0.00200	0.00100
J Estimated value ; the analyte concentration was less than the LOQ.						
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: CVAA1

 Client ID:
 MPL 10-1013-1
 Prep Method:
 7470A
 Prep Date:
 11/04/2013 08:59

 Matrix:
 Water
 Analytical Method:
 7470A
 Cal Date:
 11/04/2013 12:58

 Workgroup #:
 WG451327
 Analyst:
 PDM
 Run Date:
 11/04/2013 13:26

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 M7.110413.132628

Sample Tag: 01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Mercury		7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: IC1

 Client ID:
 MPL 10-1013-1
 Prep Method:
 300.0
 Prep Date:
 11/07/2013 12:03

 Matrix:
 Water
 Analytical Method:
 300.0
 Cal Date:
 11/06/2013 10:26

 Workgroup #:
 WG451877
 Analyst:
 JBK
 Run Date:
 11/07/2013 18:05

 Collect Date:
 10/31/2013 15:25
 Dilution:
 5
 File ID:
 11\_110713-24

Sample Tag: DL01 Units: mg/L

	Analyte	CAS#	Result	Qual	LOQ	LOD
Chloride		16887-00-6	43.1		1.00	0.500
Fluoride		16984-48-8		U	1.00	0.500
Sulfate		14808-79-8	93.5		5.00	2.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: ORION-4STAR

 Client ID:
 MPL 10-1013-1
 Prep Method:
 9040C
 Prep Date:
 N/A

Matrix:WaterAnalytical Method:9040CCal Date:

 Workgroup #:
 WG451149
 Analyst:
 EPT
 Run Date:
 11/01/2013 16:25

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 OS13110409542801

Sample Tag: Units: UNITS

Analyte	CAS#	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	8.03		0.000	0.000
Temperature At Determination (C)				0.000	0.000

Sample #: L13110051-04 PrePrep Method: N/A Instrument: SMARTCHEM

Client ID: MPL 10-1013-1 Prep Method: 310.2 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:19

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 SC131104002.026

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)	13-00-3	175		20.0	10.0

Sample #: L13110051-04 PrePrep Method: N/A Instrument: SMARTCHEM

 Client ID:
 MPL 10-1013-1
 Prep Method:
 310.2
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:19

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 SC131104002.026

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	175		20.0	10.0

Sample #: L13110051-04 PrePrep Method: N/A Instrument: SMARTCHEM

**Client ID:** MPL 10-1013-1 **Prep Method:** 310.2 **Prep Date:** N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 11/04/2013 14:08

 Workgroup #:
 WG451319
 Analyst:
 BAF
 Run Date:
 11/04/2013 14:19

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 SC131104002.026

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Alkalinity, Carbonate (as CaCO3)	13-01-4		U	20.0	10.0

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## Certificate of Analysis

U Analyte was not detected. The concentration is below the reported LOD.

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#### Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 10-1013-1 Prep Method: SM4500-CN-I Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-I
 Cal Date:
 11/06/2013 10:20

 Workgroup #:
 WG451301
 Analyst:
 DCM
 Run Date:
 11/06/2013 16:10

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 1V.1311061610-14

Sample Tag: DL01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0270		0.0100	0.00500

Sample #: L13110051-04 PrePrep Method: N/A Instrument: UV-120-1V

Matrix: Water Analytical Method: SM4500-CN-C,G-1999 Cal Date: 11/08/2013 09:20

 Workgroup #:
 WG451865
 Analyst:
 DCM
 Run Date:
 11/08/2013 15:30

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 1V.1311081530-13

Sample Tag: DL02 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.324		0.0100	0.00500

Sample #: L13110051-04 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL 10-1013-1 Prep Method: 9014-9010C Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 9014-9010C
 Cal Date:
 11/06/2013 11:30

 Workgroup #:
 WG451297
 Analyst:
 DCM
 Run Date:
 11/06/2013 12:15

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 1V.1311061215-15

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.324		0.0100	0.00500

Sample #: L13110051-04 PrePrep Method: N/A Instrument: TIAMO1
Client ID: MPL 10-1013-1 Prep Method: 120.1 Prep Date: N/A
Matrix: Water Analytical Method: 120.1 Cal Date:

 Workgroup #:
 WG451155
 Analyst:
 DIH
 Run Date:
 11/01/2013 19:21

Sample Tag: 01 Units: umhos/cm

Analyte	CAS#	Result	Qual	LOQ	LOD
Conductivity		463		50.0	10.0

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Lab Report #: L13110051 Lab Project #: 3005.011

Project Name: White Sands MR Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #: L13110051-04

PrePrep Method: N/A

Instrument: SMARTCHEM

**Client ID:** MPL 10-1013-1

Prep Method: 350.1

Prep Date: N/A

Matrix: Water Workgroup #: WG451434 **Analytical Method: 350.1** 

Cal Date: 11/05/2013 10:23

Analyst: BAF

Run Date: 11/05/2013 11:03

Collect Date: 10/31/2013 15:25

Dilution: 1

Sample Tag: 01

Units: mg/L

File ID: SC131105002.051

Analyte		CAS#	Result	Qual	LOQ	LOD
Nitrogen, Amm	onia	7664-41-7		U	0.100	0.0500
U Analyte was not detected. The concentration is below the reported LOD.						

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Lab Contact: Stephanie Mossburg

## Certificate of Analysis

Sample #: L13110051-04 PrePrep Method: N/A Instrument: SMARTCHEM

**Client ID:** MPL 10-1013-1 **Prep Method:** 353.2 **Prep Date:** N/A

 Matrix:
 Water
 Analytical Method:
 353.2
 Cal Date:
 11/05/2013 10:23

 Workgroup #:
 WG451545
 Analyst:
 BAF
 Run Date:
 11/06/2013 10:10

 Collect Date:
 10/31/2013 15:25
 Dilution:
 4
 File ID:
 SC13110811285701

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		5.56		0.200	0.100

Sample #: L13110051-04 PrePrep Method: N/A Instrument: UV-120-1V

 Client ID:
 MPL 10-1013-1
 Prep Method:
 SM4500-P-E-1999
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-P-E-1999
 Cal Date:
 10/30/2013 09:00

 Workgroup #:
 WG451168
 Analyst:
 TMM
 Run Date:
 11/01/2013 15:15

Collect Date: 10/31/2013 15:25 Dilution: 1 File ID: 1V.1311011515-08

Sample Tag: Units: mg/L

Analyte		CAS#	Result	Qual	LOQ	LOD
Orthophosphat	e	14265-44-2		U	0.0500	0.0250
U Analyte was not detected. The concentration is below the reported LOD.						

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#### Certificate of Analysis

 Sample #:
 L13110051-04
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 10-1013-1
 Prep Method:
 160.1/SM2540C
 Prep Date:
 N/A

Matrix: Water Analytical Method: SM2540-C-1997 Cal Date:

 Workgroup #:
 WG451350
 Analyst:
 ADG
 Run Date:
 11/04/2013 15:18

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 EN.1311041518-08

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Dissolved Solids		326		20.0	10.0

Sample #: L13110051-04 PrePrep Method: N/A Instrument: TOC-VWP

Client ID: MPL 10-1013-1 Prep Method: 415.1 Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 415.1
 Cal Date:
 07/09/2013 14:51

 Workgroup #:
 WG451144
 Analyst:
 BAF
 Run Date:
 11/01/2013 21:24

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 TC11012013.028

Sample Tag: 01 Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.64		1.00	0.500

 Sample #:
 L13110051-04
 PrePrep Method:
 N/A
 Instrument:
 OVEN

 Client ID:
 MPL 10-1013-1
 Prep Method:
 160.2/SM2540D
 Prep Date:
 N/A

Matrix: Water Analytical Method: SM2540-D-1997 Cal Date:

 Workgroup #:
 WG451402
 Analyst:
 ADG
 Run Date:
 11/05/2013 06:09

 Collect Date:
 10/31/2013 15:25
 Dilution:
 1
 File ID:
 EN.1311050609-08

Sample Tag: Units: mg/L

Analyte		CAS#	Result	Qual	LOQ	LOD
Total Suspend	ed Solids			U	5.00	2.50
U	Analyte was not detected. The concentration is	below the reported	LOD.			

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Certificate of Analysis

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# Microbac Laboratories Inc. Ohio Valley Division Analyst List November 14, 2013

001 - BIO-CHEM TESTING WVDEP 220 002 - REIC Consultants, Inc. WVDEP 060 ADG - APRIL D. GREENE

ADF - AMANDA J. FICKIESEN

AZH - AFTER HOURS

BAF - BRICE A. FENTON

BJO - BRIAN J. OGDEN

BLG - BRENDA L. GREENWALT

BRG - BRENDA R. GREGORY

CAA - CASSIE A. AUGENSTEIN

CAF - CHERYL A. FLOWERS

CLC - CHRYS L. CRAWFORD

CLS - CARA L. STRICKLER

CLW - CHARISSA L. WINTERS

CRW - CHRISTINA R. WILSON

CTB - CHRIS T. BUCINA

DCM - DAVID C. MERCKLE

DEV - DAVID E. VANDENBERG

DLB - DAVID T 003 - Sturm Environmental 004 - MICROBAC PITTSBURGH DDE - DEBRA D. ELLIOTT
DIH - DEANNA I. HESSON
DLP - DOROTHY L. PAYNE
DSM - DAVID S. MOSSOR DEV - DAVID E. VANDENBERG
DLB - DAVID L. BUMGARNER
DLR - DIANNA L. RAUCH DLR - DIANNA L. RAUCH ECL - ERIC C. LAWSON EDL - ERIN D. LONG EPT - ETHAN P. TIDD ENY - EMILY N. YOAK FJB - FRANCES J. BOLDEN
JBK - JEREMY B. KINNEY
JKS - JANE K. SCHAAD
JWR - JOHN W. RICHARDS ERP - ERIN R. PORTER HJR - HOLLY J. REED JDH - JUSTIN D. HESSON JLL - JOHN L. LENT JYH - JI Y. HU

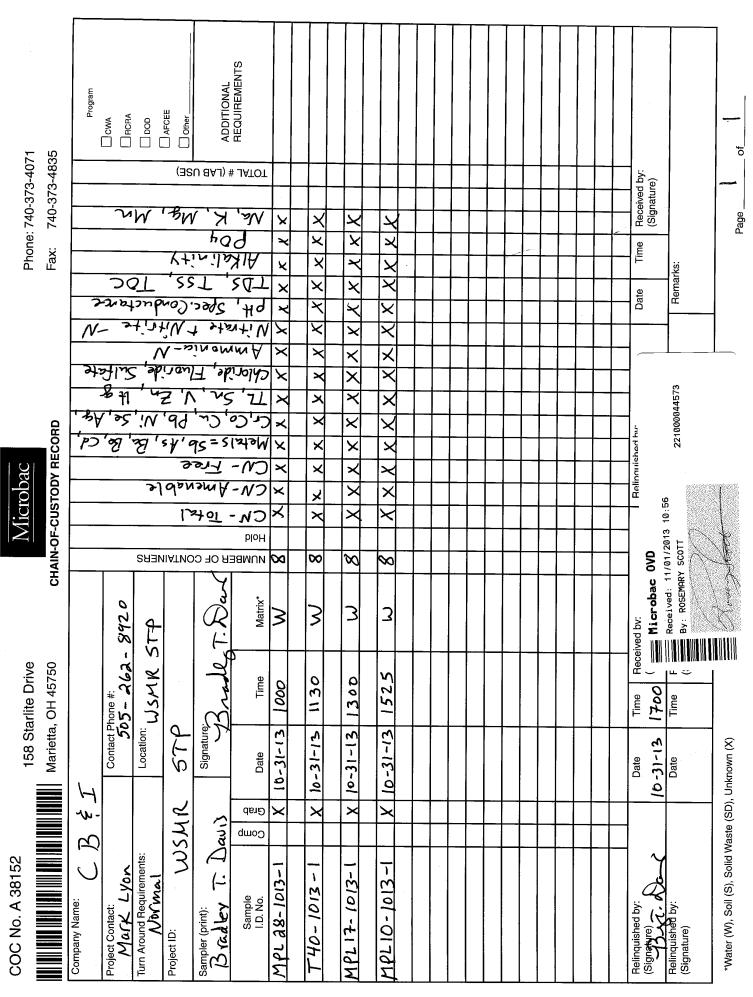
KEB - KATIE E. BARNES JWS - JACK W. SHEAVES KDW - KATHRYN D. WELCH KRA - KATHY R. ALBERTSON
KSC - KELLY S. CUNNINGHAM
LLS - LARRY L. STEPHENS
MBK - MORGAN B. KNOWLTON
MDC - MIKE D. COCHRAN
MLW - MATTHEW L. WARREN
MRT - MICHELLE R. TAYLOR KHR - KIM H. RHODES KRB - KAELY R. BECKER LKN - LINDA K. NEDEFF LSB - LESLIE S. BUCINA MDA - MIKE D. ALBERTSON MES - MARY E. SCHILLING MMB - MAREN M. BEERY MSW - MATT S. WILSON PDM - PIERCE D. MORRIS PIT - MICROBAC WARRENDALE PSW - PEGGY S. WEBB QX - QIN XU RAH - ROY A. HALSTEAD RLB - BOB BUCHANAN RNP - RICK N. PETTY RWC - RODNEY W. CAMPBELL REK - BOB E. KYER RM - RAYMOND MALEKE RS - ROSEMARY SCOTT SAV - SARAH A. VANDENBERG SEP - SUZANNE J. PAUGH SLP - SHERI L. PFALZGRAF SLM - STEPHANIE L. MOSSBURG TMB - TIFFANY M. BAILEY TMM - TAMMY M. MORRIS TPA - TYLER P. AMRINE VC - VICKI COLLIER WJB - WILL J. BEASLEY WTD - WADE T. DELONG XXX - UNAVAILABLE OR SUBCONTRACT

# Microbac Laboratories Inc. List of Valid Qualifiers November 14, 2013

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
· <	Result is less than the associated numerical value.
>	Greater than
Á	See the report narrative
В	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value; the analyte concentration was greater than the highest standard
J	Estimated value; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA ND	Not applicable  Not detected at an above the reporting limit /PL/MPL)
ND, CT1	Not detected at or above the reporting limit (RL/MDL).  Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, H1	Not detected; Sample analysis performed past holding time.
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
Р	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ UQ	Undetected; the MDL and RL are estimated due to quality control discrepancies.  Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
x, s	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below





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Internal Chain of Custody Report

**Login:** L13110051 **Account:** 3005

Project: 3005.011
Samples: 4

**Due Date:** 12-NOV-2013

 Samplenum
 Container ID
 Products

 L13110051-01
 271212
 300

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	01-NOV-2013 12:56	CLS	PSW	
4	ANALYZ	W1	SEM	01-NOV-2013 14:49	JBK	CLS	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-01</u> 271213 ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 13:13	BAF	RS	
3	STORE	WET	A1	04-NOV-2013 14:43	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-01</u> 271214 PO4

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	04-NOV-2013 14:41	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-01</u> 271215 TSS

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 08:54	ADG	RS	
3	STORE	WET	A1	12-NOV-2013 09:13	RS	ADG	

A1 - Sample Archive (COLD)

A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

Login: L13110051
Account: 3005
Project: 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

 Samplenum
 Container ID
 Products

 L13110051-01
 271216
 TOC

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нд
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		<2
2	ANALYZ	W1	WET	01-NOV-2013 14:09	BAF	RS	
3	STORE	WET	A1	07-NOV-2013 13:45	RS	BAF	

Samplenum Container ID Products

L13110051-01 271217 AG-MS AS-MS BA-MS BE-AX CA CD-MS CO-MS CR-MS (

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	PREP	W1	DIG	04-NOV-2013 07:31	REK	AZH	
3	ANALYZ*	DIG	METALS	04-NOV-2013 12:40	PDM	REK	
4	STORE	W1	DIG	05-NOV-2013 13:53	RS	ERP	

#### \*Sample extract/digestate/leachate

Bottle: 2

Sec	. Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		

<sup>\*</sup>Sample extract/digestate/leachate

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-01</u> 271218 CN-WD

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	WET	01-NOV-2013 12:29	CLS		
2	ANALYZ	WET	A1	11-NOV-2013 16:47	CLS	PSW	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-02</u> 271219 300

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	01-NOV-2013 12:56	CLS	PSW	
4	ANALYZ	W1	SEM	01-NOV-2013 14:49	JBK	CLS	

A1 - Sample Archive (COLD)

A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

**Login:** L13110051 **Account:** 3005

Project: 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

 Samplenum
 Container ID
 Products

 L13110051-02
 271220
 ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 13:13	BAF	RS	
3	STORE	WET	A1	04-NOV-2013 14:42	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-02</u> 271221 PO4

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	04-NOV-2013 14:41	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-02</u> 271222 TSS

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 08:54	ADG	RS	
3	STORE	WET	A1	12-NOV-2013 09:13	RS	ADG	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-02</u> 271223 TOC

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		<2
2	ANALYZ	W1	WET	01-NOV-2013 14:09	BAF	RS	
3	STORE	WET	A1	07-NOV-2013 13:44	RS	BAF	

A1 - Sample Archive (COLD) A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

Login: L13110051

**Account:** 3005 **Project:** 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

Samplenum Container ID Products

**L13110051-02** 271224 AG-MS AS-MS BA-MS BE-AX CA CD-MS CO-MS CR-MS (

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	STORE	W1	DIG	05-NOV-2013 13:53	RS	ERP	

Bottle: 2

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	РH
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		

Samplenum Container ID Products

**L13110051-02** 271225 CN-WD

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	WET	01-NOV-2013 12:29	CLS		
2	ANALYZ	WET	A1	11-NOV-2013 16:47	CLS	PSW	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>113110051-03</u> 271226 300

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	01-NOV-2013 12:56	CLS	PSW	
4	ANALYZ	W1	SEM	01-NOV-2013 14:49	JBK	CLS	

 Samplenum
 Container ID
 Products

 L13110051-03
 271227
 ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 13:13	BAF	RS	
3	STORE	WET	A1	04-NOV-2013 14:43	CLS	DCM	

A1 - Sample Archive (COLD)

A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

Login: L13110051
Account: 3005
Project: 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-03</u> 271228 PO4

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	На
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	04-NOV-2013 14:41	CLS	DCM	

Samplenum Container ID Products

**L13110051-03** 271229 TSS

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 08:54	ADG	RS	
3	STORE	WET	A1	12-NOV-2013 09:13	RS	ADG	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-03</u> 271230 TOC

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		<2
2	ANALYZ	W1	WET	01-NOV-2013 14:09	BAF	RS	
3	STORE	WET	A1	07-NOV-2013 13:45	RS	BAF	

Samplenum Container ID Products

L13110051-03 271231 AG-MS AS-MS BA-MS BE-AX CA CD-MS CO-MS CR-MS (

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	PREP	W1	DIG	04-NOV-2013 07:31	REK	AZH	
3	ANALYZ*	DIG	METALS	04-NOV-2013 12:40	PDM	REK	
4	STORE	W1	DIG	05-NOV-2013 13:53	RS	ERP	

\*Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нд
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		

<sup>\*</sup>Sample extract/digestate/leachate

A1 - Sample Archive (COLD)

A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

Login: L13110051
Account: 3005
Project: 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

 Samplenum
 Container ID
 Products

 L13110051-03
 271232
 CN-WD

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	WET	01-NOV-2013 12:29	CLS		
2	ANALYZ	WET	A1	11-NOV-2013 16:47	CLS	PSW	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-04</u> 271233 300

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	01-NOV-2013 12:56	CLS	PSW	
4	ANALYZ	W1	SEM	01-NOV-2013 14:49	JBK	CLS	

 Samplenum
 Container ID
 Products

 L13110051-04
 271234
 ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рH
1	LOGIN	COOLER	WET	01-NOV-2013 12:29	CLS		
2	STORE	WET	A1	04-NOV-2013 14:42	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-04</u> 271235 PO4

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	A1	01-NOV-2013 12:29	CLS		
2	PREP	A1	WET	01-NOV-2013 12:47	PSW	CLS	
3	STORE	WET	A1	04-NOV-2013 14:41	CLS	DCM	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-04</u> 271236 TSS

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		
2	ANALYZ	W1	WET	04-NOV-2013 08:54	ADG	RS	
3	STORE	WET	A1	12-NOV-2013 09:13	RS	ADG	

A1 - Sample Archive (COLD) A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login



Internal Chain of Custody Report

Login: L13110051
Account: 3005

Project: 3005.011

Samples: 4

**Due Date:** 12-NOV-2013

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L13110051-04</u> 271237 TOC

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		<2
2	ANALYZ	W1	WET	01-NOV-2013 14:09	BAF	RS	
3	STORE	WET	A1	07-NOV-2013 13:47	RS	BAF	

Samplenum Container ID Products

L13110051-04 271238 AS-MS BA-MS BE-AX CA CD-MS CO-MS AG-MS CR-MS (

Bottle: 1

Seq.	Purpose	From	То	Date/Ti	me	Accept	Relinquish	pН
1	LOGIN	COOLER	W1	01-NOV-2013 1	2:29	CLS		
2	PREP	W1	DIG	04-NOV-2013 0	7:31	REK	AZH	
3	ANALYZ*	DIG	METALS	04-NOV-2013 1	2:40	PDM	REK	
4	STORE	W1	DIG	05-NOV-2013 1	3:53	RS	ERP	

#### \*Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	01-NOV-2013 12:29	CLS		

<sup>\*</sup>Sample extract/digestate/leachate

 Samplenum
 Container ID
 Products

 L13110051-04
 271239
 CN-WD

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	WET	01-NOV-2013 12:29	CLS		
2	ANALYZ	WET	A1	11-NOV-2013 16:47	CLS	PSW	

A1 - Sample Archive (COLD) A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login V1 - Volatiles Refrigerator in Login

